Trends in Business Process Management

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Author, Business Process Change
Trends in Business Process Management

• The BPM Market Today
  • Level 1: Enterprise Level Trends
  • Level 2: Process Level Trends
  • Level 3: Implementation Level Trends
  • Where Do We Go Next?

• Case Study (If Time Allows)
Why the Interest in Business Processes Today?

• Make the company more efficient and productive by improving existing processes
• Allow the company to shift goals or get into new businesses by providing the company with the ability to quickly and efficiently create new business processes
• A management philosophy that seeks to create and maintain competitive advantage by integrating all of the activities into highly efficient and effective value chains
• IT: Take advantage of SOA, XML and BPM Systems technologies
• IT: New approach to facilitating business-IT communication
Dell Computers and the Future of Corporations

Value Chain of Company A
- Management
- IT
- HR
- Finance & Accounting
- Marketing
- New Product Development
- Sales
- Customer

Value Chain of Company B
- Management
- Supply Chain & Manufacturing
- Service
- IT
- HR
- Finance & Accounting
What is Business Process Management?

Michael Porter and Process Management

- The father of the modern Business Process Management movement is Michael E. Porter of the Harvard Business School
- 1980 *Competitive Strategy*
- 1985 *Competitive Advantage*
- 1990 *The Competitive Advantage of Nations*
- First and foremost, Business Process Management is a management philosophy and a methodology for increasing profits and obtaining competitive advantage
Michael Porter on Competitive Advantage

- **Competitive advantage** allows a company to dominate its industry for a sustained period of time.
- “Ultimately, all differences between companies in cost or price derive from the hundreds of activities required to create, produce, sell, and deliver their products or services such as calling on customers, assembling final products, and training employees…”
- “**Activities**, then, are the basic units of competitive advantage.”
Operational Effectiveness and Strategy

• “Operational effectiveness means performing similar activities better than rival perform them.”

• “Few companies have competed successfully on the basis of operational effectiveness over an extended period, and staying ahead of rivals gets harder every day.”

• “Strategic positioning means performing different activities from rivals’ or performing similar activities in different ways.”

• “While operational effectiveness is about achieving excellence in individual activities, or functions, strategy is about combining activities.”
Fit and Competitive Advantage

• “Competitive advantage grows out of the entire system of activities. The fit among activities substantially reduces cost or increases differentiation.”

• “Achieving fit is difficult because it requires the integration of decisions and actions across many independent subunits.”

• “Positions build on systems of activities are far more sustainable than those build on individual activities.”

The Focus of Functionally-Oriented Executives
The Focus of Process-Oriented Executives

Value Chain Manager
Major Processes: New Product Development, Supply Chain/Manufacturing, Sales & Marketing

Value Chain Manager
Major Processes: New Product Development, Supply Chain/Manufacturing, Sales & Marketing

Value Chain Manager
Major Processes: New Product Development, Supply Chain/Manufacturing, Sales & Marketing

Markets
Customers

Markets
Customers
What a Process Perspective Shows

Product Value Chain

- Develop New Product
- Produce Products
- Promote Product
- Sell & Service Products
- Customers
- Suppliers

- New need identified
- New product design
- Product available
- Promotions
- Order
- Product delivered
- Materials
An Aside on the Meaning of Process

Architecture
SCOR Framework

Process Redesign Projects
Business Rule Projects

Six Sigma Projects
IT Automation Projects
SAP Process Models

Value Chain

Business Process

Process

Sub-Process

Sub-Sub-Process

Activity

Business Process

Process

Sub-Process

Sub-Sub-Process

Activity

Business Process

Process

Sub-Process

Sub-Sub-Process

Activity
The BPTrends Associates Pyramid

Strategy
Process Architecture
Performance Measurement
Process Management
Alignment
BPM Governance Priorities and Planning

Enterprise Level

Business Process Level

Process Reform & Improvement Projects
Six Sigma & Lean Projects
Documentation Projects

Implementation Level

Physical Plant and Hardware Used

BPMS, BAM
Application Development
ERP Installation
Database Development

A Mix of IT and HR Development

Human Resource Development

IT Development

Job Design
Training
Development
Knowledge Management

Specific Activity

Business Process

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The Three Areas of Process Change

- **Strategy or Enterprise Level**
- **Process Level**
- **Implementation Level**

**Employee Implementation Level**

**IT Implementation Level**

**Enterprise Management Activities**

**Process Analysis & Redesign Projects**

**Specific Process Improvement Projects**

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Where Organizations Are Moving

1990s
- BP Redesign Projects
- 6 Sigma Projects
- ERP/CRM Installations
- Workflow/EAI

2000s
- Enterprise BP Management & Monitoring Programs
- Programs to Standardize Processes Throughout the Organization
- Projects to Assure Regulatory Compliance
- BPMS Projects
- SOA Projects
Most Companies Have a Variety of Efforts

The Typical Situation
There is no enterprise process model, measurement and process management system in place.

In this case projects are undertaken in a more random way, often by different groups without tight coordination.

Equally important, changing processes not only require altering the specific processes but also require that a process management and measurement system be established.
We Advocate You Create Process-Centric Company

The Ideal Situation
An enterprise process model, measurement and process management system is already in place.

In this case the organization can consider all its options and choose processes to target.

Equally important, changing processes won't require the creation of a management or a measurement system, as they will already exist and base lines for change will already be established.
A Realistic Look at Process Change

The SEI Capability Maturity Model (CMMI)

Level 1. No Organized Processes
- A Culture of Heros

Level 2. Some Organized Processes
- Processes are Improved at the Work Group or Departmental Level

Level 3. Most Processes Organized
- Processes are Organized and Redesigned at the Enterprise Level

Level 4. Processes Are Managed
- Processes are Measured and Managed Systematically

Level 5. Processes Continuously Improved
- Processes Teams Continuously Improve Processes

Most companies are between Level 2 and Level 3
Some BPM Standards

Strategy or Enterprise Level
- Balanced Scorecard (de Facto)
- SCOR/DCOR/CCOR (Supply Chain Council)
- VCOR (Value-Chain Council)
- eTOM (TeleManagement Forum)
- CMMI (SEI Institute)
- Federal Enterprise Architecture Framework (FEAF) (US Government CIO Council)

Process Level
- Six Sigma (de Facto)
- ISO 9000, etc. (Standards for Process Documentation) (ISO)
- Sarbanes-Oxley (US Law Requiring Documentation of Financial Decision Points)
- Semantics of Business Vocabulary and Business Rules (SBVR) (OMG)
- Business Motivation Model (BMM) Business Vocabulary Standard (OMG)
- Design for Six Sigma (DFSS) (de Facto)
- ITIL (IT Infrastructure Library) (UK Central Computer and Telecommunications Agency)
- CoBiT Control Objectives for Information and related Technology (ITGI)
- BPMN (OMG Process Notation Standard)
- BPDM Process Metamodel (OMG) (To be used to define BPMN?)

Implementation Level
- BPEL (Business Process Execution Language) (OASIS)
- Workflow Management Facility (WFMC and OMG)
- XBDL (Standard for passing process diagrams between workflow products) (WFMC)
- UML Activity Diagrams (OMG Notation Standard)
- Zachman (IT Enterprise Architecture Standard) (de Facto)
- MDA (Software Architecture) OMG
- TOGAF (Software Architecture) Open Group
- Production Rules (Standard for Rules for Inferencing Systems) (OMG)
- ARIS (notation for modeling SAP and Oracle ERP applications) (de Facto)
BP Initiatives Underway in 2005

- Development of an Enterprise Process Architecture: 13%
- Major Process Redesign Projects: 12%
- Lean Six Sigma Process Modeling and Redesign Training: 6%
- Process Manager Training: 6%
- Redesign Projects With Frameworks (SCOR, ITIL): 5%
- None: 4%
- Balanced Scorecard: 8%
- Six Sigma Process Improvement Projects: 7%
- Coordinating Enterprise Process Management Efforts: 8%
- Development of an Enterprise Process Performance Measurement System: 8%
- Major Process Automation Projects: 8%
- Process Analysis and Redesign Training (Non-Six Sigma): 8%
- Coordinating Enterprise Process Change Efforts: 9%
- Coordinating Enterprise Process Change Efforts: 12%
The Size and Shape of the Business Process Market

- BPM Suites: Workflow/EAI & Monitoring Software $1-1.5B
- EA & Business Process Redesign: $250M
- Lean Six Sigma Process Improvement: $250M
- Balanced Scorecard: $50M
- SCOR Frameworks Consulting: $50M
- ERC, CRM & Other Packaged Business Applications: $50B
- BP Outsourcing: $40B
- Business Rules Software & Consulting: $250M
- HPT Consulting: $50M
- SCOR Frameworks Consulting: $50M
- Balanced Scorecard: $50M
Trends in Business Process Management

• The BPM Market Today
• Level 1: Enterprise Level Trends
• Level 2: Process Level Trends
• Level 3: Implementation Level Trends
• Where Do We Go Next?
Key Enterprise Level Considerations

1.1 Enterprise Level Activities
1.2 Business Process Strategy
   Themes and Financial Measures
   Organizational Mapping and Stakeholders
1.3 Business Process Architecture
   SCOR
1.4 Process Performance Measures
   Balanced Scorecard
1.5 Business Process Managers
1.6 A BPM Group
The BPTrends Associates BPM Methodology

BPTrends Enterprise BPM Framework

- Understand Enterprise Context
- Define Business Process Architecture
- Build Process Management Capability

On-Going Execution

- Manage Enterprise Processes
- Day-to-Day Process Management
- Execute Process

BPTrends Business Process Redesign Methodology

- Understand Project
- Analyze Business Process
- Redesign Business Process
- Implement Redesigned Business Process
- Roll-Out Redesigned Business Process

The BPM Governance process might initiate other projects using other methodologies – for example it might establish a Six Sigma project to improve a process, or it might establish a documentation project to upgrade ISO documentation.

If significant IT or HR development work is required then the Process Redesign Project assigns projects to IT or HR for development.

Various IT & HR Projects, etc.
Enterprise Level Activities

- Define **Strategy**
- **Model** Business Processes
- Define Process Performance **Measures**
- **Align Resources** to Processes
- Organize Process **Management**
- Create a **BPM Group** to Provide Support
- **Prioritize and Plan** Process Changes
The Work of the Strategy Committee

- Define Business Strategy
- Monitor Strategic Performance
- Monitor Environment for Changes
- Propose Changes in Strategy As Needed
Strategic (Process) Themes

- An idea introduced by Porter and promoted recently by Kaplan & Norton (Balanced Scorecard)
- Porter argued that a value chain should be tightly integrated, and focused on producing a product or service that was well positioned
- Thus, when a positioning strategy is selected, the strategy group should proceed to define a set of themes and typical activities to show how the positioning strategy is to be implemented
- This isn’t process design, but simply a way of suggesting how a process design would implement the strategic position the strategy group identified
- The actual process designers should then assure that ALL activities in the actual process reflect the themes
Strategic Themes for Southwest Airlines

Overall theme: Low cost, on time airline

- Limited Passenger Service
  - No meals
  - No seat assignments
  - No baggage transfers
  - No connections with other airlines

- Frequent, Reliable Departures
  - 15 minute gate turnarounds

- Lean, Highly Productive Ground & Gate Crews
  - High compensation of employees
  - Flexible union contracts
  - No meals

- Limites use of travel agents
  - Automatic ticketing machines

- Standardized fleet of 737 aircraft

- Short-haul, Point-to-Point Routes Between Midsize Cities and Secondary Airports
  - Very Low Ticket Prices
  - Southwest, the Lowfare Airline
  - High Aircraft Utilization
  - High level of employee stock ownership

After Michael Porter, "What is Strategy?"
HPR Nov-Dec 1996
Michael Porter’s Value Chain Model

From Michael Porter, *Competitive Advantage*, Harvard, 1985
Unisys Corp. Functions and Value Chains

Unisys Senior Management

Strategy Committee

Marketing
Sales
Finance
New Product Development
Manufacturing
Service

Value Chain: Systems Integration

Value Chain: Outsourcing

Value Chain: Network Services

Value Chain: Core Services

Value Chain: Enterprise Server Technology

Other Value Chains
Mapping Organizations and Core Processes

General Environmental Influences:
The US and world economies, government regulations, and social trends

Suppliers & Partners
- Labor Markets (people)
- Capital Markets (capital)
- Research Community (technology)
- Vendors (materials)

An Organization / A Specific Value Chain

Marketing
- Advertising
- Prospect identification

New Product
- Analysis of competitor's products
- Sales & Service

Supply Chain Manufacturing

Customers & Owners
- Shareholders (information & dividends)

Market
- Product delivered
- Sales contacts
- Orders
- Service requests & complaints
- Competitive products

Competition
Identifying What’s Valuable to Stakeholders

An Organization / A Specific Value Chain

Marketing

New Product

Supply Chain Manufacturing

Sales & Service

General Environmental Influences:
The US and world economies, government regulations, and social trends

Suppliers & Partners

Customers & Owners

Shareholders

Leverage

Materials

Labor Markets

Capital Markets

Research Community

Vendors

people

capital

technology

information & dividends

prospect identification

product delivered

sales contacts

orders

service requests & complaints

competitive products

General Environmental Influences:
The US and world economies, government regulations, and social trends

Competition

Marketing

New Product

Supply Chain Manufacturing

Sales & Service

The US and world economies, government regulations, and social trends

Labor Markets

Capital Markets

Research Community

Vendors

people

capital

technology

Materials

General Environmental Influences: The US and world economies, government regulations, and social trends

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Stakeholders

- People who care about and exert influence over the company, its processes, and its products
  - Owners (shareholders)
  - Customers (and markets)
  - Employees
  - Managers
  - Partners
  - Suppliers
  - Government (legal, regulatory)
  - Public
  - Competitors
Representing a Business Process Architecture

• A **diagram** that senior management can use to visualize the BP architecture
  – Useful, but keep it simple
• A **matrix** that pulls all the information together in one place
  – What we’ll do in this class
• A **repository** that makes it easy to alter and add elements to the architecture as they become available
  – What you’ll want to create at your company for the long haul
Creating a BP Architecture

Stakeholders
Determine the stakeholders associated with each process

Strategy & Goals
Define organization goals
Determine which processes support which strategic goals
Define process level strategies

Process Management
Determine who is responsible for the management and the performance of each process
Define management scorecards

Process Measurement
Define process measures for each process
Monitor process performance and compare with benchmarks

Process Standardization
Determine which subprocesses and activities are reused in different processes
Standardize reusable subprocesses

IT Alignment
Determine the IT resources that support each process and subprocess (e.g. applications, hardware, databases, networks)

HR Alignment
Determine the employee resources that support each process and subprocess (e.g. jobs & role descriptions, training, knowledge management, etc.)

Value Chain: Produce & Sell Widgets
Core, Managerial, and Supporting Processes

Customer Order Fulfillment Process

- Receive Order
- Approve Order
- Fill Order
- Deliver Order
- Customer

Support Processes:
- Stock Supplies
- Order Supplies
- Receive Supplies
- Supply Reorder Process
- Establish Sourcing Procedure
- Evaluate Vendors
- Supply Reorder Management Process
- Sign Contracts
The Supply Chain Council’s SCOR

- The best example of a popular horizontal BP architecture is provided by the Supply Chain Council’s SCOR framework
- Created in past 5 years by consortium of some 700 companies
- Defines a top-down approach to organizing the BP architecture of a corporate supply chain process
- www.supply-chain.com
SCOR MODEL: Level 0

Value Chain: E.g. Consumer PCs

Resources → Supply Chain → Customers
SCOR MODEL: Level 1

Supply Chain

Plan

Source

Make

Deliver

Return
SCOR MODEL: Level 2

Plan

Source
- S1 Source Stocked Products
- S2 Source MTO Products
- S3 Source ETO Products

Make
- M1 Make-to-Stock
- M2 Make-to-Order
- M3 Engineer-to-Order

Deliver
- D1 Deliver Stocked Products
- D2 Deliver MTO Products
- D3 Deliver ETO Products

Return
SCOR Model: Level 3

S3. Source ETO Product

- S3.1 Schedule Product Deliveries
- S3.2 Receive Product
- S3.3 Verify Product
- S3.4 Transfer Product
- S3.5 Authorize Supplier Payment
SCOR Material Flow Diagram

- Warehouse (S1, D1) (SR1, DR1, DR3)
- Other Suppliers (D1)
- Latin American Suppliers (S1) (SR1, SR3)
- European Supplier (D2) (SR1, SR3)
- Customer (S1, D1) (SR1, DR1, DR3)

Manufacturing

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### SCOR’s Level 1 Measures

<table>
<thead>
<tr>
<th>Performance Attribute</th>
<th>Performance Attribute Definition</th>
<th>Level 1 Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Facing Attributes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Chain Delivery Reliability</td>
<td>The performance of the supply chain in delivering: the correct product, to the correct place, at the correct time, in the correct condition and packaging, in the correct quantity, with the correct documentation, to the correct customer.</td>
<td>Delivery Performance</td>
</tr>
<tr>
<td>Supply Chain Responsiveness</td>
<td>The velocity at which a supply chain provides products to the customer.</td>
<td>Fill Rates</td>
</tr>
<tr>
<td>Supply Chain Flexibility</td>
<td>The agility of a supply chain in responding to marketplace changes to gain or maintain competitive advantage.</td>
<td>Perfect Order Fulfillment</td>
</tr>
<tr>
<td><strong>Internal Facing Attributes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Chain Costs</td>
<td>The costs associated with operating the supply chain.</td>
<td>Order Fulfillment Lead Times</td>
</tr>
<tr>
<td>Supply Chain Asset Management Efficiency</td>
<td>The effectiveness of an organization in managing assets to support demand satisfaction. This includes the management of all assets: fixed and working capital.</td>
<td>Supply Chain Response Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production Flexibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost of Goods Sold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Supply Chain Management Costs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value-Added Productivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warranty / Returns Processing Costs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cash-to-Cash Cycle Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inventory Days of Supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asset Turns</td>
</tr>
</tbody>
</table>
**Process Element: Produce and Test**

**Process Element Definition**
The series of activities performed upon sourced/in-process product to convert it from the raw or semi-finished state to a state of completion and greater value. The processes associated with the validation of product performance to ensure conformance to defined specifications and requirements.

<table>
<thead>
<tr>
<th>Performance Attributes</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Ratio Of Actual To Theoretical Cycle Time</td>
</tr>
<tr>
<td></td>
<td>Scrap expense</td>
</tr>
<tr>
<td></td>
<td>In-process failure rates</td>
</tr>
<tr>
<td></td>
<td>Yields</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Produce and Test Cycle Time</td>
</tr>
<tr>
<td>Flexibility</td>
<td>None Identified</td>
</tr>
<tr>
<td>Cost</td>
<td>Warranty costs as % of (S+M+D) costs</td>
</tr>
<tr>
<td></td>
<td>Total Production Employment</td>
</tr>
<tr>
<td></td>
<td>Produce and Test costs / unit</td>
</tr>
<tr>
<td>Assets</td>
<td>Capacity utilization</td>
</tr>
<tr>
<td></td>
<td>Asset Turns</td>
</tr>
</tbody>
</table>
## SCOR Benchmarks Provide Instant ROI

### Supply Chain SCORcard

<table>
<thead>
<tr>
<th>Overview Metrics</th>
<th>SCOR Level 1 Metrics</th>
<th>Actual</th>
<th>Parity</th>
<th>Advantage</th>
<th>Superior</th>
<th>Value from Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Chain Reliability</td>
<td>Delivery Performance to Commit Date</td>
<td>50%</td>
<td>85%</td>
<td>90%</td>
<td>95%</td>
<td>$30M Revenue</td>
</tr>
<tr>
<td></td>
<td>Fill Rates</td>
<td>63%</td>
<td>94%</td>
<td>96%</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perfect Order Fulfillment</td>
<td>0%</td>
<td>80%</td>
<td>85%</td>
<td>90%</td>
<td>$30M Revenue</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Order Fulfillment Lead Times</td>
<td>35 days</td>
<td>7 days</td>
<td>5 days</td>
<td>3 days</td>
<td>$30M Revenue</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Supply Chain Response Time</td>
<td>97 days</td>
<td>82 days</td>
<td>55 days</td>
<td>13 days</td>
<td>Key enabler to cost and asset improvements</td>
</tr>
<tr>
<td></td>
<td>Production Flexibility</td>
<td>45 days</td>
<td>30 days</td>
<td>25 days</td>
<td>20 days</td>
<td></td>
</tr>
<tr>
<td>External Cost</td>
<td>Total SCM Management Cost</td>
<td>19%</td>
<td>13%</td>
<td>8%</td>
<td>3%</td>
<td>$30M Indirect Cost</td>
</tr>
<tr>
<td></td>
<td>Warranty Cost</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Value Added Employee Productivity</td>
<td>NA</td>
<td>$156K</td>
<td>$306K</td>
<td>$460K</td>
<td>NA</td>
</tr>
<tr>
<td>Internal Assets</td>
<td>Inventory Days of Supply</td>
<td>119 days</td>
<td>55 days</td>
<td>38 days</td>
<td>22 days</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Cash-to-Cash Cycle Time</td>
<td>196 days</td>
<td>80 days</td>
<td>46 days</td>
<td>28 days</td>
<td>$7 M Capital Charge</td>
</tr>
<tr>
<td></td>
<td>Net Asset Turns (Working Capital)</td>
<td>2.2 turns</td>
<td>8 turns</td>
<td>12 turns</td>
<td>19 turns</td>
<td>NA</td>
</tr>
</tbody>
</table>
Balanced Scorecard and SCOR Measures

Balanced Scorecard Concepts

Porter’s Strategic Themes Concept

Achieve Competitive Advantage

Integrate & Align Value Chain Processes

Competitive Positioning Strategy

Productivity Strategy

- Internal Measures
  - Improve Cost Structure
  - Increase Asset Utilization

Growth Strategy

- External Measures
  - Enhance Customer Value
  - Expand Revenue Opportunities

Cost

Internal Measures

- Cash-to-Cash Cycle Time
- Return on Supply Chain Fixed Assets

Flexibility

- Return on Working Capital
- Order Fulfillment Cycle Time

Responsiveness

- Improve Product/Service
- Expand Market

Reliability

Supply Chain Strategy & Themes

SCOR Performance Attributes

Value Chair

Create New Products

Manage Sales & Marketing

Enabling Processes

Product or Service

Market

Customer

www.bptrends.com
# Kaplan and Norton’s Balanced Scorecard

<table>
<thead>
<tr>
<th>Financial Perspective</th>
<th>Internal Business Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
<td><strong>Measures</strong></td>
</tr>
<tr>
<td>Survive</td>
<td>Cash flow</td>
</tr>
<tr>
<td>Succeed</td>
<td>Quarterly sales growth &amp; operating income by division</td>
</tr>
<tr>
<td>Prosper</td>
<td>Increased market share and ROE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Innovation &amp; Learning Perspective</th>
<th>Customer Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
<td><strong>Measures</strong></td>
</tr>
<tr>
<td>Technology leadership</td>
<td>Time to develop next generation</td>
</tr>
<tr>
<td>Manufacturing learning</td>
<td>Process time to maturity</td>
</tr>
<tr>
<td>Product focus</td>
<td>Percent of products that equal 80% sales</td>
</tr>
<tr>
<td>Time to market</td>
<td>New product interdiction vs. competition</td>
</tr>
</tbody>
</table>
Scorecard, Processes, & Process Managers

Corporate Scorecard

Value Chain Scorecard / Scorecard for Manager of Value Chain

Supply Chain Scorecard / Scorecard for Manager of Supply Chain

Make Scorecard / Scorecard for Manager of Make Process

Scorecard for Check Quality of Products / Scorecard for Manager of Check Quality Process
Branching Scorecard Systems

- Corporate Scorecard
- Scorecard for VP of Sales of the North American Division
- Scorecard for SVP of Widget Value Chain
- Scorecard for a Sales Manager

Sub-Process → Sub-Process → Sales Sub-Process → Sub-Process
What is the Organizational Structure?

- Functional Organizational Structure
- Matrix Organization
- Process Organizational Structure

Weak Matrix Organization
- Who owns the resources?
- Who owns the budget?
- Is there a dedicated group of project managers?

Strong Matrix Organization

Project Management Institute's Classification of the Five Organizational Types
Coordinating the Management of Processes

CEO

Process Architecture Committee

Executive Committee

Widget Process

SVP Widget Process

Process Management Team

Sales Department

VP Sales

Sales Supervisor

Sales Process

Manufacturing Department

VP Manufacturing

Manf. Supervisor

Manufacturing Process

Delivery Department

VP Delivery

Delivery Supervisor

Delivery Process

Widget Value Chain

Customer
Your BPM Driver

• Any major Enterprise Level BPM effort requires the strong support of the CEO
• In most companies, a major BPM effort is organized around a “Driver” that gives impetus and focus to the effort
  – Winning the Baldrige Award
  – Establishing a More Efficient Performance Measurement System
  – Embracing Six Sigma Effort Companywide
  – Overtaking a Competitor
  – Installing a Single Instance of SAP
The BPM Group

BPM Group Processes:

- Create and maintain the enterprise business process architecture (Maintain BPM repository)
- Help create, maintain and manage the process performance system
- Help create and support the process manager system (Create/Maintain BP management training)
- Recruit, Train, Manage BP Change Professionals (Standardize on methodologies, BP tools)
- Manage Risk / Standards Reporting & Documentation
- Maintain up-to-date BP architecture
- Use architecture to analyze, prioritize & scope process change options
- Report on corporate process performance
- Identify problems & recommend solutions
- Manage managers BP scorecards & evaluations
- BP manager job descriptions
- Train all new managers in business process techniques
- Acquire BPM tools
- Manage BP change projects
- Prepare reports for Sarbanes-Oxley & ISO 9000 documentation

Mission I: Strategy/Org Model: Plan to Create
Mission II: BP Architecture: Plan to Create
Mission III: Align Resources: Plan to Create
Mission IV: Perf Measurement System: Plan to Create
Mission V: Management System: Plan to Create
Mission VI: BPM Group: Plan to Create
The FEAF Performance Reference Model (PRM)

**Inputs**
- Human Capital
- Technology
- Other Fixed Assets

**Strategic Outcomes**
- Mission & Business Results
  - Services for Citizens
  - Support Delivery of Services
  - Management of Government Resources
- Customer Results
  - Customer Benefit
  - Service Coverage
  - Timeliness & Responsiveness
  - Service Accessibility
- Values
- Processes and Activities
  - Quality
  - Security & Privacy
  - Management Innovation
  - Financial
  - Productivity & Efficiency
  - Cycle Time & Timeliness
- Technology
  - Financial
  - Quality
  - Efficiency
  - Information
  - Reliability
  - Availability
  - Effectiveness
Trends in Business Process Management

• The BPM Market Today
• Level 1: Enterprise Level Trends
• **Level 2: Process Level Trends**
• Level 3: Implementation Level Trends
• Where Do We Go Next?
Key Process Level Considerations

2.1 The Process Level Focuses on Projects
2.2 Approaches to Process Change
2.3 Process Change Gaps
2.4 Specific Problems and Analytic Techniques
2.5 Lean Six Sigma
The Process Level Combines Projects and Methodologies

Process Problems
- New Process
- Process Needs Major Redesign
- Existing Process
- Process Needs Improvement

Methodologies
- Business Process Redesign
- IT Development
- Human Performance Improvement
- Lean Six Sigma Methodology

Basic Project Management Techniques

Process Analysis and Redesign Project
- Establish New Improvement Plan
- Measure Results of Process
- Implement New or Revised Process
- Roll Out New or Revised Process
- Identify Opportunities for Improvement
- Model Process
- Arrange Sponsors for Projects
BPR Methodologies

Environmental Threats or Strategic Opportunities Require that Process Be Reconceptualized

Process Has Significant Problems and Needs to Be Changed in Fundamental Ways

Process Stable

Process Improvement

Smaller Sub-Processes

Mid-Sized Business Processes and Sub-Processes

Value Chains and Core Business Process

Process Redesign

Process Reengineering
The BPTrends Associates BPM Methodology

Developing Enterprise Tools and Redesigning Processes

BPTrends Enterprise BPM Framework


On-Going Execution

Manage Enterprise Processes

If Enterprise BPM Governance process is in place then projects are prioritized, assigned and initially scoped at the enterprise level.

BPTrends Business Process Redesign Methodology


The BPM Governance process might initiate other projects using other methodologies—for example it might establish a Six Sigma project to improve a process, or it might establish a documentation project to upgrade ISO documentation.

If significant IT or HR development work is required then the Process Redesign Project assigns projects to IT or HR for development.

Various IT & HR Projects, etc.

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A Successful Project Needs to Be Managed

Our Focus: The Redesign Process

Manage Redesign Project

- PLAN PROJECT
- ANALYZE & REDESIGN
- DEVELOP NEW PROCESS DESIGN
- IMPLEMENT
- ROLL-OUT NEW PROCESS

Implementation Level Projects

- HR Projects to Develop New Jobs, Training, New Incentive Systems
- Project to Acquire or Develop New Hardware or Facilities
- Project to Develop New Products
- IT Projects to Acquire or Develop New Software Applications or Tools
- Project to Develop New Management or Measurement Systems

Either you get Scoping information from the Enterprise level or you must work to develop it yourself

Or-Going Process Management Improvement Efforts
High-Level Process Problems

Process Measures:

External Measures: Quality and Timeliness
Internal Measures: Output-to-Cost and Cycle Time

1. Boundary of Process (What's included and what isn't)
2. Strategy of Process (What's it trying to accomplish)
3. Input/Outputs Clearly Specified (Contracts)
4. Are Customers Satisfied with Quality and Timeliness?
5. Smooth Flow Without Unnecessary Activities
6. Logical Decision Points and Clear Business Rules
7. Minimum Time for Activities and for Handoffs
8. All employees know and perform necessary activities
9. Automation used were helpful and responsive where used
10. Subprocess performance is well defined and acceptable
Activity and Task-Level Process Problems

Process Measures:
- Internal Measures: Cost/ Hour

11. Improve efficiency and effectiveness of specific activities and specific decisions
12. Task Analysis, Procedure Analysis, Cognitive Task Analysis
13. Studies of How Specific Performers Accomplish Tasks
The Heart of Redesign: Finding and Eliminating Gaps

1. Measures of As-Is Process’s Performance
2. Desired Measures of To-Be Process’s Performance
3. How we do Things Now
4. How we will Need to do things in the Future

Performance Gap
Capabilities Gap
A Problem is a Difference Between What Is and What is Desired

- Measures of As-Is Process’s Performance
  - External Measures
  - Internal Measures
- Desired Measures of To-Be Process’s Performance
  - External Measures
  - Internal Measures

Performance Gap

Existing or As-Is Process

Capabilities Gap

- What is Done Now
- Internal Measures
- Processing
  - Unnecessary Work Performed
  - Too Much Time Taken
  - Too Costly
  - Too Much Waste
  - Bad Decisions

Redesigned or To-Be Process

What Will Need to Be Done

- External Measures
- Output
  - Wrong Output
  - Inconsistent Quality
  - Not Enough
  - Not on Time

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Defining the Nature of the Gap

The diagram illustrates the comparison between the As-Is Process and the To-Be Process, highlighting the gaps in capabilities.

### Analysis Techniques Used to Define the Gap

| Mid-Level Process Problems | Basic Flow Problems with Core Process:  
Non-Value Adding Activities  
Too Much Time Between Activities |
|----------------------------|----------------------------------------------------------------------------------|
| Activity & Task Level Problems | Employee Problems:  
Employees Don’t Know What To Do  
Employees Don’t Know How To Do It  
Employees Aren’t Given Feedback When They Do It Right or Wrong |
A Simple Example

Product Production Cycle Currently Takes 5 Hours

Measures of As-Is Process’s Performance

Desired Measures of To-Be Process’s Performance

Performance Gap

Capabilities Gap

What is Done Now

What Will Need to Be Done

Analysis Techniques Used to Define the Gap

A Time Study Shows that Work Often Goes to Inventory Between Workstations and Stays There on Average 3 Hours

Redesign Techniques Used to Modify the Capabilities of the Process

Lean Technique: Streamline Flow by Reorganizing Steps to Eliminate Moving Work to Inventory

Management Wants Process Outputs in Half the Time

Existing or As-Is Process

Redesigned or To-Be Process
You Keep Working at Eliminating the Gap

Phase I: Plan Project

<table>
<thead>
<tr>
<th>Existing or As-Is Process</th>
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<tr>
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<td>Analysis Techniques Used to Define the Gap</td>
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<tr>
<td></td>
<td>Redesign Techniques Used to Modify the Capabilities of the Process</td>
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<tr>
<td></td>
<td>A Business Case to Show that Moving from What is Done Now to a New Version of the Process Will Justify the Investment</td>
</tr>
<tr>
<td>Redesigned or To-Be Process</td>
<td>What Will Need to Be Done</td>
</tr>
</tbody>
</table>

In Phase I you survey all elements in a general way to make an estimate about what is desired, whether its likely to be possible, and what it might likely cost. You seek to answer the question: Does it seem worthwhile to go further?

Phase II: Analyze & Redesign

<table>
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</tbody>
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In Phase II you survey all elements in more detail. You analyze the gap in considerable detail, generate more specific solutions and get more specific about the business case. You seek to answer the question: What exactly would we try to do if we proceeded, what benefits would likely result and what would the redesign cost?

Phase III: Develop New Process Design

<table>
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In Phase III you focus on defining exactly what changes you will make and how much each will cost. You plan any implementation efforts and estimate their costs so that you can make a very precise business case for doing the implementation.
The Five Areas of a Project Scoping Diagram

1. The Processes/Subprocesses -in-Scope
   And the Management of the Same

2. Results of Processing

3. Inputs to Process:
   - Material to be transformed
   - Information to be processed
   - States to be changed
   - People

4. Information that will be referenced by processes
   - Methods and Rules that will guide the processing
   - Events – Triggering & Completion

5. People assigned to process
   - Technologies used in process
   - Facilities that are used

Guides
An IGOE is a Variation on a Cause-Effect Diagram

We simply find it easier to write in blacks than on fish bones and we can use the space in the center for simple flow diagrams.
The Work of a Day-to-Day Process Manager

Managers Above and Peers

Communicate & Coordinate

Generic Activities of a Day-to-Day Process Manager

PLAN WORK
- Set goals and expectations
- Establish plans and schedules
- Establish budget

ORGANIZE WORK
- Provide resources and staff
- Establish processes
- Establish success criteria

COMMUNICATE ABOUT WORK
- Communicate reasons for work & commitment to work

CONTROL WORK
- Monitor process
- Reinforce success
- Diagnose deviations
- Take corrective actions

Project On On-Going Process

Inputs

Results

Provide goals, vision to workers

Praise and Corrective Action

Data About Activities

Data About Results

Process Output Measures

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Processes Components & Interface Requirements

- Guides come from other processes in architecture or from an External Stakeholder or a Process Enabler
- Information that will be referenced by processes
- Methods and Rules that will guide the processing
- Events – Triggering & Completion

- The Process/Activities Being Assessed
- Enablers
- People assigned to process
- Technologies used in process
- Facilities that are used

- Inputs: Material to be transformed
- Information to be processed
- States to be changed
- People

- Outputs: Results of Processing
- Outputs go to other processes in architecture or to an External Stakeholder
Books-OnLine: Order Fulfillment Process

Customer

Place Order

Revise Order

Receive Order

(order incomplete. Ask customer for more information)

(order rejected)

Company Web Portal

Order System

Automated Activities Accomplished by Software Applications

Review Order

(order requires special processing)

Review Order

(order accepted. Send work order to shipping)

Packaging

Credit Card Approval

Credit Card Approval Center

Re-Review Order

Close Order

Fill Order

Ship Order

Shipping

books
Six Sigma at the Process Level: DMAIC

1. Define
   - Plan Project
     - 1. Define project
     - 2. Identify customer requirements
     - 3. Document process
     - 4. Set goal
     - 1-2 wks.

2. Measure
   - Identify Measures
     - 1. Identify Measures
     - 2. Define measures
     - 3. Develop & test data collection methods
     - 4. Define baseline measures
     - 1-2 wks.

3. Analyze
   - Analyze Data
     - 1. Analyze data
     - 2. Explore possible causes and test hypotheses
     - 3. Identify causes
     - 2 wks.

4. Improve
   - Implement Measurement
     - 1. Select a solution
     - 2. Pilot test solution
     - 3. Implement full scale solution
     - 4-8 wks

5. Control
   - Document and Maintain
     - 1. Document and keep score of results
     - ongoing

Graph showing distribution of data with sigma levels:
- 0.13% within 3σ
- 68.26% within 2σ
- 95.46% within 1σ
- 99.73% within mean
- 0.13% at +3σ
- 2.14% at +2σ
- 13.06% at +1σ
- 34.13% at mean
- 68.26% at -1σ
- 95.46% at -2σ
- 99.73% at -3σ
- 0.13% at -3σ
What’s Impressive About Six Sigma

- The results it can achieve when it enters the organization with serious support from the CEO
  - Welch at GE tied each senior manager’s bonus to Six Sigma results
- The rigor the program creates: Master Black Belts, Black Belts, Green Belts, etc.
- The techniques that have grown up around Six Sigma
- Its “sales” approach is based on calculations of money saved
  - A black belt costs $50K to train and will generate $250K of saving /year
- Despite the results there is no industry standards group
Lean and Six Sigma

- Six Sigma – Maximizing Process Quality & Consistency
  - Began at Motorola in mid-Eighties
  - DMAIC for Process Improvement
  - DMADV for New Process Design
  - Design For Six Sigma (DFSS)
  - TRIZ for Innovation

- Lean (Kaizen) – Smoothing Flow & Minimizing Waste
  - Flow Kaizen – Focus on improving high level flow
  - Process Kaizen – Focus on the elimination of waste
Lean Flow Kaizen: Value-Stream Mapping

From: Learning to See: Value-Stream Mapping to Create Value and Eliminate Muda, by Mike Rother and John Shook. The Lean Enterprise Institute, 2003
Trends in Business Process Management

• The BPM Market Today
• Level 1: Enterprise Level Trends
• Level 2: Process Level Trends
• Level 3: Implementation Level Trends
• Where Do We Go Next?
Implementation Level Considerations

3.1 Implementation
3.2 A Very Robust BP Tools Market
3.3 BPMS Systems Development
3.4 Business Rules
3.5 The Evolution on ERP Systems
3.6 Process Performance Monitoring Systems Development
3.7 Implementation Level Standards
Implementation is Managing the Work of Others

Developing Enterprise Tools and Redesigning Processes

BPTrends Enterprise BPM Framework

- Understand Enterprise Context
- Define Business Process Architecture
- Build Process Management Capability

On-Going Execution

- Manage Enterprise Processes
- Day-to-Day Process Management
- Execute Process

BPTrends Business Process Redesign Methodology

- Understand Project
- Analyze Business Process
- Redesign Business Process
- Implement Redesigned Business Process
- Roll-Out Redesigned Business Process

If significant IT or HR development work is required, then the Process Redesign Project assigns projects to IT or HR and waits for the necessary development work to occur.

Implementation Level Projects

- HR Projects to Develop New Jobs, Training, New Incentive Systems
- Project to Acquire or Develop New Hardware of Facilities
- Project to Develop New Products
- IT Projects to Acquire or Develop New Software Applications or Tools
- Project to Develop New Management or Measurement Systems
Types of Process Implementation

Depending on the project, there will be different needs for changes:

• Changes in **Product Design** or Facilities
• Implementing **Employee Systems** Changes
  – Job Definitions
  – Training Programs
  – Motivation/Incentive Systems, etc.
• **Implementing IT System Changes**
  – BPM Systems/Workflow/EAI
  – Rule-Based Management Systems
  – Applications Purchased (ERP-CRM)/Developed
• Implementing **Process Governance** Changes
  • Process Owner Training
  • Process Performance Monitoring Systems
  • Business Process Outsourcing
Business Process Software Products

BP Languages
XML DSLs and BPEL, BPML

BP Modeling Tools
Modeling Capability + Repository

Process Simulation Tools

Organization Modeling Tools
Business Process Architecture Tools

Graphics Tools

Statistics Tools

BPM Suite
Modeling Capability + BPM Engine

EAI Tools

Workflow Tools

Application Servers

Software Development Suites

BI and Data Warehouse Products

Business Rule Management Tools
Tool for creating, storing and using business rules.

Universal BP Repository
Database capable of storing information from all the BP tools.

Packaged/Enterprise Application Suites

Application Servers

Workflow Tools

Software Development Suites

BI and Data Warehouse Products

XML DSLs and BPEL, BPML

Modeling Capability + Repository

Modeling Capability + BPM Engine

Modeling Capability + BPM Engine + Application Components

Modeling Capability + Ability to Monitor Runtime Process + Dashboard Capability
The Architecture of a Serious Modeling Tool

- **Interface:** Ability to Access Models Via a PC or a Browser

- **Index to All Models, Processes, Attributes, etc.**

- **Multiple Modeling Screens**

- **Simulation Environment**

- **Product Metamodel**

  - Can support multiple notations (e.g. BPMN)

  - Can support standard interchange metamodel (or repository model) (e.g. CIF, OMG Process Metamodel)

- **Product Repository (Database)**
Business Process Management Systems

• **BPMS** (Not, BPM, please)
• In essence, we are talking about a successor to Workflow and EAI technologies that make it possible to automate the execution of business processes
• The underlying assumption is that IT resources ought to be organized to implement explicit business processes
• The good news is that it’s now driving a lot of interest in BPM (used in its more generic sense).
A BPM Suite

Software Tool That Displays a Graphical View of a Process

A → B → C → D → E

Logical Description of the Process

BPMS Engine

Physical Implementation of the Process

Software Component B
Software Component C
Enterprise Application Module D
Enterprise Application Module E

For more information, check the BPTrends BPM Suites Report – www.bptrends.com
The Key is Controlling the Business Process

Logical Description of the Process

Software Tool That Displays a Graphical View of a Process

BPMS Engine

Business Analyst Interface

Software Tool (Engine) That Manages Links Between Diagram and Implementation

A

C

D

E

User Interface

Physical Implementation of the Process

Software Component C

Enterprise Application Module D

Software Component B

Enterprise Application Module E

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Generic Model of a BPMS Product

Knowledge
- Specific Rule Sets or Ontologies
- Specific Business Models
- Complete Process Frameworks

Utilities
- Development Environment
- Process Modeling Environment
- Process Modeling Environment
- Management Environment

Engines
- Rules Engine
- Workflow Engine
- EAI Engine

Middleware/Application Server
- Eg. J2EE Server: WebSphere
- Eg. Windows .NET Server: BizTalk
- Eg. ERP Server: NetWeaver

Employees
Process Managers
BPM Repositories/Databases
Software Applications
Developers
BPM Systems and SOA

- Service Oriented Architectures (SOA) refer to systems that use the Web and XML protocols to dynamically call software components as they are needed.
- SOA is still building up momentum in the US and there are only a few large applications that truly implement this approach.
- SOA will continue to evolve, however, and BPM systems will be key to developing applications.
- We are approaching the point where companies will have to share business process descriptions to achieve their goals.
Figure After a BPTrends Column by Mike Rosen, Jan. 2006
Aligning Processes and Business Rules

The Business Rules Management Perspective

Strategy or Enterprise Level
- Organization Policies
- Organization Compliance

Business Rules Level
- Organization Ontology and Specific Business Rules

Implementation (Uses of Rules)
- Human Resource Architecture
  - Rules Embedded in Manuals and Process Documentation
  - Rules Embedded in Software Applications

IT Architecture
- Activity Measurement Plan
- Activity/Performance Monitoring System
- Job Design
- Human-IT Interface Model
- Screens and Reports
- Application Design and Code
- Database Design and Data Management Systems
- Network Architecture
- Technology Architecture
- Hardware Architecture

Physical Plant and Hardware Used

The Business Process Management Perspective

Strategy or Enterprise Level
- Organization Goals
- Organization Performance

BP Architecture
- BP Analysis & Redesigning

Business Process Level
- BP Architecture

Physical Level

Logical Level

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## A Little History Review

### Expert Systems/Knowledge Engineering

<table>
<thead>
<tr>
<th>The Eighties</th>
<th>The Nineties</th>
<th>The Zeros</th>
</tr>
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<tbody>
<tr>
<td>Rule-Based Expert System Building Tools</td>
<td>Case-Based Expert System Building Tools</td>
<td>Business Intelligence &amp; Data Mining</td>
</tr>
<tr>
<td>Frame-Based Expert System Building Tools</td>
<td>Knowledge Acquisition</td>
<td>Knowledge Management</td>
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### Business Rules

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<td>Conferences on Separating Rules From Software Programs</td>
<td>Databases for Business Rules</td>
<td>“Former Expert System Tools” Become Available for Business Rule Applications</td>
</tr>
<tr>
<td>Rules in Training and Manuals</td>
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<td>Rule-Based Applications</td>
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### Enterprise Frameworks

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### Business Process Change

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<tbody>
<tr>
<td>Structured IT Methodologies</td>
<td>CASE Tools Market Collapses</td>
<td>Some Rule Tools Shift to BPMS Tools</td>
</tr>
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<td>CASE Tools</td>
<td>Business Process Reengineering</td>
<td>BPMS Tools</td>
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<td>Six Sigma</td>
<td>Process Modeling Tools</td>
<td>EAI</td>
</tr>
<tr>
<td>Rummler-Brache</td>
<td>ERP</td>
<td>Business Process Management</td>
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1981: IBM PC 1995: The Internet SOA
Business Processes Often Include a Mix of Business and Expert Rules

Business Knowledge (Business Policies)
- Based on Policies
- Derived Top-Down
- Derived Logically
- Relatively Straight-Forward
- Do Not Usually Involve Complex, Deep Hierarchies of Knowledge Objects

“Knowledge Workers”
- Decision Systems and Aids That Capture Limited Modules of Expertise

Expert Knowledge (Not formalized)
- Based on Experience
- Derived Case by Case
- Derived Empirically
- Relatively Convoluted
- Usually Involves Complex, Deep Hierarchies of Knowledge Objects
• Davenport’s *Mission Critical* (HPR Press, 1999)
• Most major companies have installed at least some packaged applications (ERP, CRM)
• Many have spent 100s of millions and many are disappointed with the results
• Most BP consultants think the difference between likely success and likely failure lies with how well understood and modeled a company’s business processes are before the ERP effort begins
• Letting IT undertake ERP – as a technology effort – without first getting the business processes organized is a recipe for failure
A Customized ERP Suite

User

ERP Module 1

ERP Module 2

ERP Module 3

ERP Database

User

User
Reality: Multiple Processes and ERP Instances

Activity 1

User

ERP Module 1
Instance 1

ERP Module 2
Instance 1

 ERP Module 3
Instance 1

ERP Database

Activity 2

User

Activity 3

User
Standardizing Processes to Standardize Instances

Diagram showing the relationship between users, activities, and ERP modules.
AP is a Process-Focused Company

Global Process Board
- Align Executive Process Owner
- Innovate Executive Process Owner
- Sell Executive Process Owner
- Plan Executive Process Owner
- Source Executive Process Owner
- Make Executive Process Owner
- Fulfill Executive Process Owner
- Build Executive Process Owner

Division or Department Manager
- Align Process
- Innovate Process
- Sell Process
- Plan Process
- Source Process
- Make Process
- Fulfill Process
- Build Process

CEO

Division or Department Manager
- Align Process
- Innovate Process
- Sell Process
- Plan Process
- Source Process
- Make Process
- Fulfill Process

Division or Department Manager
- Align Process
- Innovate Process
- Sell Process
- Plan Process
- Source Process
- Make Process
- Fulfill Process

Division or Department Manager
- Align Process
- Innovate Process
- Sell Process
- Plan Process
- Source Process
- Make Process
- Fulfill Process

Division or Department Manager
- SAP Align Instance
- SAP Innovate Instance
- SAP Sell Instance
- SAP Plan Instance
- SAP Source Instance
- SAP Make Instance
- SAP Fulfill Instance
- SAP Build Instance

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A Set of ERP Modules Managed by BPMS

- User
- BPMS Application
  - Activity 1
  - Activity 2
  - Activity 3
  - Activity 1
  - Activity 2
  - Activity 3
- ERP Module 1
- ERP Module 2
- ERP Module 3
- BPM Database
BPM Suites vs. BPM Applications

• Vendors will evolve from generic tools to applications
• Meantime ERP and CRM vendors are trying to incorporate BPM tools
  – SAP’s NetWeaver
  – Microsoft’s BizTalk Server
  – Oracle’s BPM Suite
• One Way or Another We Are Going to Move Beyond the Rigidity of the Current Line of Enterprise Applications
• In the Process Managers Will Get a Lot More Flexibility and Control
### SAP Telecommunications Business Architecture

<table>
<thead>
<tr>
<th>Enterprise Management</th>
<th>Strategic Enterprise Management</th>
<th>Business Analytics</th>
<th>Business Intelligence &amp; Decision Support</th>
<th>Accounting</th>
<th>Workforce Planning &amp; Alignment</th>
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<tbody>
<tr>
<td>Customer Relationship Management</td>
<td>Marketing &amp; Campaign Management</td>
<td>Sales Management</td>
<td>Dealer Management</td>
<td>Customer &amp; Retention Management</td>
<td>Customer Care</td>
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<td>Contract Management</td>
<td>Order Management</td>
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<td>Customer Trouble Management</td>
<td>Trouble Resolution</td>
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<td>Credit Management</td>
<td>Pre-Billing</td>
<td>Convergent Invoicing</td>
<td>eBPP</td>
<td>Receivables &amp; Collections Management</td>
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<tr>
<td>Supply Chain Management</td>
<td>Supply Network Design</td>
<td>Demand &amp; Supply Planning</td>
<td>eProcurement</td>
<td>Production Planning &amp; Execution</td>
<td>Supply Chain Coordination</td>
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<td>Network Lifecycle Management</td>
<td>Demand Planning</td>
<td>Requirements Planning</td>
<td>Investment Management</td>
<td>Network Design &amp; Build</td>
<td>Operation &amp; Maintenance</td>
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<tr>
<td>Value Added Services</td>
<td>Content &amp; Intellectual Properties Management</td>
<td>Advertising Management</td>
<td>Mobile Business &amp; Wireless ASP</td>
<td>eLearning</td>
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<td>Business Support</td>
<td>Human Resources Operations Sourcing &amp; Deployment</td>
<td>Travel Management</td>
<td>Financial Supply Chain Management</td>
<td>Treasury/Corporate Finance Management</td>
<td>Real Estate</td>
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The Chordiant BPMS Suite

Uses Corticon Rules Engine

Most Software Components Are From Chordiant, But the Suite Can Just as Easily Use Other Components With Their Own Databases
Process Monitoring (BAM) vs. Value Chain Monitoring

Operation Level Monitoring
- Process Supervisor
- BPMS
- Business Process Instance
- Events Monitored
- BPMS Repository
- Information From Other Sources

Strategy Level Monitoring
- CEO
- VP Supply Chain
- Filtered & Summarized Information
- BI Application
- Data Warehouse
The OMG’s Model Driven Architecture

- **Computation-Independent Model (CIM)**: Created by Business Analysts to Describe Business
- **Platform-Independent Model (PIM)**: Created by Architect/Designer to Describe Architecture
- **Platform-Specific Model (PSM)**: Created by Developer or Tester to Implement Solution

**Mappings**
- CIM >> PIM Mapping
- PIM >> PSM Mapping
- PSM >> Code Mapping

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The OMG’s BP Metamodels

- Business Process Definition Metamodel
  - UML 2.0
  - BPMN
  - Various BP Tools
  - J2EE
  - BPEL
  - Various BP Tools

- Business Rules Metamodel

- MOF: Meta Object Facility
- XMI

- Ontology Metamodel
BPEL

• The Business Process Execution Language (BPEL) – a BPMS engine (for EAI)
• Initially proposed by BEA, IBM, and Microsoft, it is currently being formalized by OASIS.
• It provides the basis for managing/integrating software for BPMS products.
• It doesn’t support integrating people into BPMS.
• It is supported by several BPMS vendors
• Open source versions are becoming available
Market Consolidation

- 3-06  BEA (Middleware) buys Fuego (BPM engine)
- 12-05 Intalio (BPM Engine) buys FiveSight (BPEL)
- 10-05 Metastorm (Workflow) merges with CommerceQuest (EAI)
- 9-05  Fair Issac (Rules) buys RulesPower (Rules)
- 7-05  Seagull Software (Middleware) buys Oak Grove Systems (BPM engine)
- 6-05  Sun (Middleware) buys SeeBeyond (EAI)
- 4-05  TeleLogic (Modeling) buys Popkin (BP modeling)
- 6-04  Oracle (Packaged applications) buys Collaxa (BPEL)
- 6-04  TIBCO (EAI) buys Staffware (Workflow)
- 4-04  Adobe (Documents) buys Q-Link (Workflow)
- 9-02  IBM (Middleware) buys Holosofx (BP Modeling)
Trends in Business Process Management

- The BPM Market Today
- Level 1: Enterprise Level Trends
- Level 2: Process Level Trends
- Level 3: Implementation Level Trends
- Where Do We Go Next?
Why A Process-Centric Focus?

• Process is the cornerstone of an effective strategy
• Processes are the most practical and effective way of managing an organization
• Process Management is the best response to rapid change
• In many companies Process Change Initiatives are out of control
• New requirements and techniques make Business Process Management even more compelling
New Slide: Uptake of BP Technologies

Innovators
Companies that pursue new technologies aggressively to gain early advantage

Early Adopters
Companies that pursue new approaches aggressively to gain early advantage

Early Majority
Companies that wait for a new approach to prove itself and then move quickly

Late Majority
Companies that wait until the new approach is well established and there is lots of support

Where Do You Start?

• There is no one right place to start
• Some organizations have been working on process change for years. Others are new to process management.
• Some have Six Sigma. Others have IT groups that are active in process redesign.
• Some work on projects and others work on enterprise-wide process management systems.
• You start from where you are at.
• You start at the point where your senior management is willing to begin.
For More Information

- **pharmon@bptrends.com**
  - To contact me.
- **www.bptrends.com**
  - Monthly newsletter and a wide variety of white papers – more detail on everything I’ve discussed
Books to Read

• Michael Porter on Competitive Advantage & Strategy (*Completive Strategy*, HBP, 1980; *Competitive Advantage*, HPR, 1985)
• Peter Bolstorff on SCOR and the use of Frameworks (*Supply Chain Excellence*, AMACOM, 2003)
• Better, take a SCOR workshop ([www.supply-chain.com](http://www.supply-chain.com))
• Anything Joe Francis has published on BPM Groups and the use of Frameworks ([www.BPTrends.com](http://www.BPTrends.com) column)
• APQC BPM Benchmarking Reports
• Paul Harmon on putting it all together (*Business Process Change*, Morgan Kaufmann, 2003 and BPTrends articles)
Case Study: Boeing Airlift & Transit

- Boeing A&T has one of the most sophisticated integrated business process management systems in existence
- They started creating it in 1993 and it took four years
- In 1998 they won the US Government’s Baldrige Award
Boeing A&T Identified 300+ Processes

Boeing Airlift & Tanker Program: C-17 Program Value Chain

Lead the Enterprise
- Ensure Organizational Effectiveness
- Ensure Integration of Strategic Bus. & Functional Planning
- Perform Self-Governance
- Ensure Quality & Mission Assurance

Integrate & Deploy Processes & Procedures
- Ensure Continuous Improvement

Communicate Positions & Directions
- Strengthen the Team
- Provide Ethics Guidance
- Provide Customer Satisfaction

Manage Programs
- Administrator Contracts
- Manage Program Planning & Execution
- Minimize Program Risk
- Manage IWA Performance
- Provide Integrated Performance Mang. (Cost & Schedule)

Create, Acquire & Grow Business
- Ensure Integration of Strategic Bus. & Functional Planning
- Ensure Continuous Improvement
- Manage IWA Performance
- Provide Customer Satisfaction

Integrate Product/Service Definition
- Define & Manage Product/Service Requirements
- Plan & Control Product Service Design
- Concurrently Develop Product/Service/Build-to-Buy-to/Support Elements
- Verify & Validate Product/Service

Manage Suppliers
- Manage Material Rhythm
- Select Source
- Negotiate & Award Purchase Contracts
- Manage Supplier Performance
- Manage Supplier Quality
- Manage Supply Base
- Manage Gov Property
- Manage Inventory

Produce Product
- Define Production Plan
- Provide Parts, Supplies, GFE & Tools to Assembly
- Assemble & Deliver Product
- Verify Production Processes

Support Products & Services
- Provide Supply Support
- Provide Field Services
- Provide Retrofit & Modification Services
- Provide Technical Data
- Provide Instructional Systems Data & Training
- Provide Integrated Support Planning & Management
- Provide System Support Analysis
- Provide Support Equipment

Provide Enabling Infrastructure
- Provide Financial Services
- Provide Communications Services
- Provide Legal Services
- Provide Safety, Health & Env. Services
- Provide Security & Fire Protection Services
- Provide Export/Import Compliance
- Provide Integrated Information Systems & Services
- Provide Flight Operations Services
- Manage Non-Production Procurement

Ensure Integration of Strategic Bus. & Functional Planning
- Ensure Continuous Improvement
- Manage IWA Performance
- Provide Customer Satisfaction

Create, Acquire & Grow Business
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- Provide Financial Services
- Provide Communications Services
- Provide Legal Services
- Provide Safety, Health & Env. Services
- Provide Security & Fire Protection Services
- Provide Export/Import Compliance
- Provide Integrated Information Systems & Services
- Provide Flight Operations Services
- Manage Non-Production Procurement
• Assume you have 4 value chains, that 4 value chain owners
Assume each value chain has 8 major processes, that's 32 major process owners.

**Process Governance Committee**

- Define Value Chains
- Identify Owner of Each Value Chain
- Define Goals/Measures for Each Value Chain
- Define Major Processes in a Value Chain
- Identify Owner of Each Major Process
- Define Goals/Measures for Each Major Process
Assume each major process has 8 subprocesses, that's 256 subprocess owners.
Each Boeing A&T Process Owner Defines a Process

**PROCESS FLOWCHART**

**Applies To:** <Bus. Unit/Program Name Here>

**Who Responisible Organization or Individuals**

- Suppliers
- Program Engineer
- Cost Analyst
- Buyer
- Procurement Management
- Procurement Advisor

**Input**

- Purchase Requisition
- Supplier Proposal
- Technical Evaluation
- Cost/Price Analysis
- Purchase Requisition Evaluation
- Negotiate and Award Purchase Order

**Major Tasks for Process Owner:** Negotiate and Award Purchase Order

**Process Number:** 5.02

**Creation Date:** <Origin Date Here>

**Revision Date:** <Revision Date Here>

**Output**

- Purchase Order

---

**LEGEND**

- Input/Output
- Task
- Decision
- Connector
- Record
- Control Point
Boeing Airlift & Transport Measures

Meet or Exceed Customer Expectations

Attain Superior Business Results

Key Performance Categories

Quality
- Measure of conformance or non-conformance (defects) to requirements or expected performance

Timeliness
- Measure of success in meeting a customer commitment

Efficiency
- Measure of output that a process produces in relation to costs

Cycle-Time
- Measure of time between a customer request and delivery of the product or service to the customer

Requirements

Process Performance

Quality

Timeliness

Efficiency

Cycle-Time

Measure of conformance or non-conformance (defects) to requirements or expected performance
Measure of success in meeting a customer commitment
Measure of output that a process produces in relation to costs
Measure of time between a customer request and delivery of the product or service to the customer

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Aligning External, Output Measures

Boeing A&T C-17 Value Chain

Boeing Suppliers

Core Process 1

Core Process 2

Core Process 3

SubProcess 2.1

SubProcess 2.2 (Supplier of 2.3)

SubProcess 2.3 (Customer of 2.2)

The US Air Force

Inputs

Outputs

Inputs
Aligning External Measures With Contracts

Boeing A&T C-17 Value Chain

- Boeing Suppliers
- The US Air Force

Core Process 1

Core Process 2

Core Process 3

SubProcess 2.1

SubProcess 2.2 (Supplier of 2.3)

SubProcess 2.3 (Customer of 2.2)

These Contracts Assure Vertical Alignment

These Contracts Assure Horizontal Alignment
Results of Boeing A&T Governance Effort

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<tr>
<th>Malcolm Baldrige Range</th>
<th>Performance Factor</th>
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<td>2</td>
<td>1.7</td>
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<tr>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>4</td>
<td>1.7</td>
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<tr>
<td>5</td>
<td>4.2% 4.3% 2.9% 2.5% 2.2% 2.2% 1.9% 1.4% 1.4% 1.1%</td>
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<tr>
<td>6</td>
<td>100 80 50 17 12 8 6 10 15</td>
</tr>
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<td>7</td>
<td>58% 58% 67% 100% 92% 100% 100% 100% 100% 100%</td>
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<tr>
<th></th>
<th>120 Aircraft Decision</th>
<th>CalQED Largest Multi-year Contract</th>
<th>Daedalian Flex Sustainment</th>
<th>Baldrige C32/C40</th>
<th>IW Finalist 15 C-17 add-on</th>
<th>RONA UK Order</th>
<th>Awards UK1-4 Deliveries</th>
<th>Span Time Milestones</th>
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<td>7.5 X</td>
<td>17 X</td>
<td>18 X</td>
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<td>RONA</td>
<td>120 Aircraft Decision</td>
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*Days ahead of schedule to USAF decreased due to an insertion of four UK planes into the 2001 schedule